

1

WHAT IS CLAIMED IS:

5

1. A method for improving error rate performance of short data packets in an impulsive noise environment, the method comprising:

initializing a cable modem on multiple channels and selecting the channels the cable modem is ranged on.

10

2. The method as recited in claim 1, wherein the cable modem is single carrier.

15

3. The method as recited in claim 2, wherein the multiple channels include at least one wideband channel and at least one narrowband channel.

20

4. The method as recited in claim 1, wherein the multiple channels include at least one wideband channel and at least one narrowband channel.

25

5. The method as recited in claim 2, wherein the cable modem sends a request for a grant to a cable modem termination system requesting to transmit a data packet.

30

6. The method as recited in claim 5, wherein the grant indicates which channel the cable modem will transmit the data packet on.

7. The method as recited in claim 6, wherein a wideband channel is utilized if the data packet is long.

35

8. The method as recited in claim 6, wherein a narrowband channel is utilized if the data packet is short.

1

9. The method as recited in claim 5, wherein the cable modem termination system transmits to the cable modem a list of channel parameters, a list of burst profile parameters and a list of user unique parameters.

5

10. The method as recited in claim 5, wherein the request for the grant is in minislots.

10

11. The method as recited in claim 5, wherein the request for the grant is in bytes.

12. The method as recited in claim 9, wherein the request for the grant is in minislots.

15

13. The method as recited in claim 9, wherein the request for the grant is in bytes.

20

14. The method as recited in claim 6, wherein the cable modem termination system determines which upstream channel to transmit the data packet based upon the size of the data packet and upstream traffic conditions.

25

15. The method as recited in claim 9, wherein the cable modem termination system transmits to the cable modem, via the grant, a channel selected from the multiple channels to transmit the data packet.

30

16. The method as recited in claim 5, wherein the request for the grant is sent on a narrowband channel.

17. The method as recited in claim 15, wherein at least two short data packets are bundled together to make a new long packet to transmit over a wideband channel.

35